Assignment 3

March 9, 2014

Measure the access time for searching for an element in (a) an array, (b) a sorted array, (c) a binary search tree (d) a balanced binary search tree.

Plot the access time for increasing size of n, where n is the number of elements in the data structure. n must range from 1 to (atleast) 500,000, in steps of 1000. Always use the worst-case access time (searching for an element which is not present.)

Produce separate plots for three different types of inputs used to build the data structure: (a) random permutation of n integers, (b) ascending order, (c) descending order. The running time for each data structure and input must be logged, in (separate) log files, in a manner which facilitates their automatic processing (using tools like `awk`.)

You can use the command `time` to return the running time of your program.